REMARKS

Claims 1-9 were pending in the USPTO application and were rejected variously under 35 USC 102(e) and 103(a), as unpatentable over Abraham (US 2004/0142701). By this amendment, Claim 1 is amended. No new matter is introduced by these amendments.

In common mobile and cellular telephone networks, the cell transmitter only periodically broadcasts in bursts when the phone is in standby mode, e.g., 20-msec bursts in 700-msec intervals. Abraham does not deal with the problems this causes when trying to derive GPS local oscillator reference signals from the cellular phone system. Abraham depends on an active phone connection where the network transmissions can be near continuous and would allow frequency reference information to be extracted from them without the gaps in broadcasting interfering.

Synchronizing or slaving the GPS receiver's master reference oscillator to a continuously available standard is conventional, as demonstrated by the teachings of Abraham. The infrequent availability of corrective signals during cellphone standby mode is the problem solved by embodiments of the present invention. The NCO recited in the Claims is actively corrected during the 20-msec bursts. The last corrected NCO value is carried through the 700-msec intervals. The NCO is used to build an error estimate with the help of correlators. The VCO frequency is not directly corrected or slaved. The error estimate is used

mathematically to guide the frequency search so the first satellites can be found and their signals locked on.

Abraham also teaches the use of an NCO, a carrier NCO 250 and a code NCO 252. Their purposes are not quite the same as in the claimed present invention. This difference can be seen in the discussion in Abraham related to its Fig. 4. Claim 1 recites, "periodically adjusting said NCO with samples obtained in the step of sampling such that said base station provides a basis for accurate frequency measurement through a series of snap-shots". Abraham, in contrast, depends on continuous frequency measurements in order to ascertain when the error curve 402 of f_o drifts outside control band 406. When it does, paragraph [0026] describes the CPU 216 and DAC 226 kicking the VCXO at times 410 over to the opposite side of the control band. The next paragraph [0027] describes an alternative method where CPU 216 constantly adjusts the VCXO 228 output. It could only do this if the cellular system reference was constantly available, which it is not during standby.

A mobile phone in standby mode only receives active corrections to its VCO operating frequency from the network in short bursts, e.g., 20-msec each 700-msecs. The VCO can drift in between these corrections by a frequency drift greater than those that can be tolerated by a navigation receiver's local oscillator. So, embodiments of the present invention make the error comparisons of the navigation receiver MCLK to the mobile

phone VCO for those times the VCO is actually receiving active corrections from the communications network.

Claim 1 is amended to more clearly and precisely limit to this situation by reciting, "during said standby mode operation, sampling said 20-msec bursts of frequency reference information from a base-station". And, "periodically adjusting said NCO with samples obtained in the step of sampling such that said base station provides a basis for accurate frequency measurement through a series of updates that coincide with said 20-msec bursts of frequency reference information".

The claimed present invention uses measurements of a wireless communications network carrier frequency broadcasts to estimate the frequency error of a local reference oscillator for a GPS receiver, e.g., a master clock (MCLK). Once the GPS receiver locks onto navigation satellite transmissions, it becomes self-sufficient in estimating local reference clock errors by depending thereafter on measurements of the navigation satellites carrier transmissions.

So the application limited its teachings to circuits and methods that help in the initialization of the navigation receiver. Abraham teaches many of the same circuits and advantages in associating a cellular phone to help initialize a GPS receiver, but the Claims 1-9 recite interrelationships that are very different than those in Abraham. So at first inspection, Abraham may seem to anticipate the claimed present invention. But, in fact, the claimed present invention improves

over Abraham by providing for the more usual case that the cellular handset is in its standby mode.

Figs. 1 and 2 and the Specification describe using twenty 1-msec accumulation periods to compute estimates of the frequency drift of the 27.456 MHz MCLK. The twenty estimates can be averaged to produce a signal drift estimate. A numeric controlled oscillator (NCO) is clocked by the drifting MCLK, and the NCO's 4-MSB's are used to index lookup tables for conversion to sinewaves and cosinewaves. Reconstructing the NCO output count as sinewave magnitudes allows them to be mixed with the VCO output for phase comparisons. The resulting I-mix and Q-mix signals are accumulated and held in I-latch and Q-latch as drift estimates. These estimates can then be used by the navigation receiver to narrow the range of its starting frequency searches because the frequency uncertainty of MCLK is reduced.

The methods described in the Specification allow any VCO frequency up to the MCLK frequency to be compared 1:1 with a frequency synthesized by the NCO from the MCLK. The frequency synthesized by the NCO tracks the MCLK error drift. When the ideal NCO value is used, the actual frequency difference in MCLK counts will be accumulated.

Abraham is different. It sounds similar by saying in the Abstract that it uses "a conventional oscillator in a cellular telephone transceiver as a source of a reference signal for a GPS receiver." But if the cellular telephone transceiver is in standby mode, its conventional oscillator is not in constant

instantaneous lock with the cellular system. The in-between drift is enough to invalidate the cell phone's oscillator as a good-enough source to train the GPS reference frequency. So embodiments of the present invention correlate and accumulate the errors only during the bursts, and reconstruct analog signals using tables so analog mixers can be used to extract the difference frequency.

Claim 1 has also been amended to overcome the objection for having misspelled the word "uninitialized". The amendments to Claim 1 and the arguments herein should overcome the rejection of Claims 1-2 under 35 USC 102(e) as being anticipated by Abraham. Such Reference cannot anticipate the solution offered by the claimed present invention when it has not even considered the problem being solved. The rejections under 35 USC 103(a) of the other claims based on Abraham are similarly faulty. None of the cited prior is aware of the problems in relying on standby mode handsets when trying to illicit a good enough reference signal from the cellular basestation.

Abraham (2004/0142701), Eberlein, and Abraham (US 6,819,707) all describe NCO's, cell phones, correlators, I and Q, VCO, initialization, etc., but even all together they never address the capturing of synchronization bursts that occur in standby mode. This understood, further amendments to Claims 2-9 seemed unnecessary. Suggestions for clarifying in the Claims the distinctions over the cited prior art are invited.

Should the Examiner be of the opinion that a telephone conference with Applicant's attorney would expedite matters, they are invited to contact the undersigned at the telephone number listed below.

Dated: 08/15/2006

Respectfully submitted,

By: ____________________
Thomas E. Schatzel
Reg. No. 22,611

LAW OFFICES OF THOMAS E. SCHATZEL
A Professional Corporation
16400 Lark Ave., Suite 240
Los Gatos, California 95032
Telephone : (408) 358-7733
Facsimile No.: (408) 358-7720

I hereby certify that this correspondence is being deposited with the U.S. Postal Service as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450 on 08/15/2006
(Date of Deposit)

THOMAS E. SCHATZEL
Name of applicant, assignee, or Registered Rep.

Signature 8/15/06
Date